AMENDMENT

(Amendment under the provision of Patent Law Section 11)

Honorable Director-General of the Patent Office

1. International Application: PCT/JP00/00046

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4. Date of Notification: 07.11.00

5. Part of Amendment: Claims

6. Content of Amendment

(1) In claim 1, "In an electronic cam schemed rotary cutter control method ... position-controlled by different velocity waveforms based on ... a position loop is provided in an entire region on the basis of an electronic cam curve and an electronic cam

curve is used that is in a cubic function as a position pattern in a non-cutting section and in a quadratic function as a velocity pattern whereby control is possible through automatic dealing with by a same algorism even during long cutting and during short cutting or upon line-velocity change " is amended to "In an electronic cam schemed rotary cutter control method ... position-controlled by different position patterns based on ... position control is carried out at all times in every region on the basis of an electronic cam curve wherein the electronic cam curve in a cubic function is used as a position command for a non-cutting section thereby realizing control extremely reduced in positional deviation in entire region including during cutting".

(2) In claim 2, "In an electronic cam schemed rotary cutter control method to be controlled by different velocity waveforms based on ... and during short cutting a line-velocity is reduction-controlled, ... a position loop is provided in an entire region o the basis of an electronic cam curve and an electronic cam curve is used that is in a cubic function as a position pattern in a non-cutting section and in a quadratic function as a velocity pattern thereby eliminating a necessity of line-velocity reduction down to a shorter size than the conventional, ..." is amended to "In an electronic cam schemed rotary cutter control method to be position controlled by different position patterns based on ... and during short cutting a line-velocity is reduction-controlled, ... position control is carried out at all times in every region on the basis of a electronic cam curve wherein the electronic cam curve in a cubic

function as a position command for a non-cutting section with a resulting velocity in a quadratic function is used to decrease a torque effective value of a cutter servo motor and eliminates the necessity of reducing the line velocity down to a shorter size than the conventional, ...".

(3) In claim 3, " ... wherein a velocity pattern of a spiral edg due to a cam curve diagram, in a cutting section, is the same as the line velocity but, in non-cutting section, rises to form a quadratic curve during short cutting and decreases in a quadratic curve during long cutting, wherein the velocity pattern of a straight edge is in a different pattern that the velocity in the cutting section only is proportional to $1/\cos\theta$ as compared to the velocity pattern of the spiral edge" is amended to " ... wherein as a result of a spiral edge cam curve diagram a velocity pattern, in a cutting section, is the same as the line velocity but, in non-cutting section, rises to form an upward-convex quadratic curve during short cutting and decreases i a downward-convex quadratic curve during long cutting, wherein the velocity pattern of a straight edge is in a different pattern that th velocity in the cutting section only is proportional to $1/\cos\theta$ (θ representing an angle of the edge from the immediately below during cutting) as compared to the velocity pattern of the spiral edge".

(4) In claim 4, " ... characterized in that ... using a cubic function for a position command by a continuous correlation control scheme including a prediction up to a next-cycle work start and a quadratic function for velocity feed forward, whereby a bag length or

cut length of the work-piece is automatically corresponded to regardless of an extent of a circumferential length per M (M=1. 2. ..., seal surface count or edge count) thereby obtaining an optima electronic cam curve" is amended to " ... characterized in that ... position control is performed using a cubic function for a position command by a continuous correlation control scheme including a prediction up to a next-cycle work start and a quadratic function obtained by differentiating a position command formula for velocity feed forward, whereby a bag length or cut length of the work-piece is automatically corresponded to regardless of an extent of a circumferential length per M (M=1. 2. ..., seal surface count or edge count) thereby obtaining an optimal electronic cam curve having a positional deviation extremely reduced in an entire section including during cutting".

(5) In claim 5, "An electronic cam curve generating method .... wherein ... " is amended to "An electronic cam curve generating method .... wherein ... whereby a non-cut-section position instruction formula and a velocity feed forward formula being obtaine by merely providing four boundary conditions of a cutter edge positic and velocity at a time of cut completion and a cutter edge position and velocity at a next time of cut start".

7. List of Attached Documents: Pages 24, 25 and 26 for claims